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			EXAMINER	
			SPOONER, LAMONT M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/697,333

Applicant(s)

HARIK ET AL.

Examiner

LAMONT M. SPOONER

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-19, 21, 22, 24-32, 41, 43 and 44 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7, 9-19, 21, 22, 24-32, 41, 43 and 44 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-849)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Introduction

1. This office action is in response the applicant's Pre-Brief Conference request dated 8/25/08. Claims 1-7, 9-19, 21, 22, 24-32, 41, 43 and 44 are currently pending and have been examined.

Response to Arguments

2. Applicant's arguments with respect to the 35 USC 103 rejections of claims 1-7, 9-19, 21, 22, 24-29, 43 and 44 have been considered but are moot in view of the new ground(s) of rejection (Regarding claims 1-7, 9-19, 21, 22, and 24-29, the Examiner notes, Fernley et al. (US 2002/0174101) has been removed). The new grounds of rejection include Shanahan et al. (US 6,820,075), Goodwin et al. (Goodwin, 7,200,592)), Ortega et al. (Ortega, US 6,564,213), Risvik et al. (Risvik, US 6,377,945) and Veale (US 6,584,470).

3. Applicant's arguments filed 8/25/08 regarding claims 31, 32 and 41 have been fully considered but they are not persuasive.

More specifically, applicant argues:

Regarding claims 31 and 32, "At col. 60, lines 41-57, Shanahan et al. discloses that entries offered to the user may be a single word, all words to

the end of a sentence, or all words to the end of a paragraph. Shanahan et al. also discloses that snippets/segments of the document from where the suggested completions were extracted can be provided in a separate sub-window. Nowhere does Shanahan et al. disclose or remotely suggest trimming a sentence completion. Rather, Shanahan et al. merely discloses providing context for a completion of an entity fragment by providing a snippet/segment of the document from which the completion was extracted. Thus, Shanahan et al. does not disclose or suggest one or more servers that are configured to trim a sentence completion by dropping one or more words from the sentence completion, as recited in claim 31.

At col. 57, lines 60-62, Shanahan et al. discloses that the auto-completion system can ignore words and phrases that rarely occur, and omit these words and phrases from the auto-completion entity database (col. 57, lines 43-49). Nowhere does Shanahan et al. disclose or remotely suggest trimming a sentence completion. Rather, Shanahan et al. merely discloses omitting rare words and phrases from an auto-completion entity database. Thus, Shanahan et al. does not disclose or suggest one or more servers that are configured to trim a sentence completion by dropping one or more words from the sentence completion, as recited in claim 31.

At col. 60, lines 41-57, Shanahan et al. discloses that entries offered to the user may be a single word, all words to the end of a sentence, or all words to the end of a paragraph. Shanahan et al. also discloses that snippets/segments of the document from where the suggested completions were extracted can be provided in a separate sub-window. Nowhere does Shanahan et al. disclose or remotely suggest trimming a sentence completion. Rather, Shanahan et al. merely discloses providing context for a completion of an entity fragment by providing a snippet/segment of the document from which the completion was extracted. Thus, Shanahan et al. does not disclose or suggest one or more servers that are configured to trim a sentence completion by dropping one or more words from the sentence completion, as recited in claim 31. At col. 57, lines 60-62, Shanahan et al. discloses that the auto-completion system can ignore words and phrases that rarely occur, and omit these words and phrases from the auto-completion entity database (col. 57, lines 43-49). Nowhere does Shanahan et al. disclose or remotely suggest trimming a sentence completion. Rather, Shanahan et al. merely discloses omitting rare words and phrases from an auto-completion entity database. Thus, Shanahan et al. does not disclose or suggest one or more servers that are configured to

trim a sentence completion by dropping one or more words from the sentence completion, as recited in claim 31.”

The Examiner first notes, that in claim 31, the applicant fails to define a sentence completion. Furthermore, the text determined within the entities as cited by Shanahan, C.57, lines 43-62 that is ignored within the auto-completion entity extraction, is determined as the designated completion items with words being dropped from the completion to include a revised entity or completion element. Therefore, as **explicitly stated by Shanahan**, the entity is the auto-completion element, and the extracted entity my ignore words. Thus, there are words that are dropped from the entity, which includes words dropped from the sentence auto-completion element.

Regarding claim 41, on page 5 of applicants arguments, “At col. 21, line 35 - col. 22, line 7, Veale discloses that a composite answer is produced by combining answer fragments into a single answer. Veale discloses combining multiple, partial answers to form a more complete single answer (col. 22, lines 60-62). Veale provides an example of a composite answer at col. 22, lines 1-7. **Veale does not disclose or suggest sentence completions that include text located within**

identified sentences between at least a portion of a fragment of text

+and an end of the identified sentences. Rather, Veale discloses

composite answers constructed from multiple partial answers. Thus, Veale does not disclose or suggest a processor that is configured to merge at least two sentence completions, associated with identified sentences within documents that include at least a portion of a fragment of text, to form a single merged sentence completion, as recited in claim 41.”

The Examiner notes, “However, Veale teaches merging at least two of the sentence completions to form a single merged sentence completion, provide a plurality of the sentence completions, including the merged sentence completion as potential completions for the fragment of text (C.21 line 35-C.22 line 7-his merging two sentence completions to form one complete sentence ending).” The Examiner thus notes, the Applicant has produces a piecemeal analysis of the references, wherein the Examiner relies solely on Shanahan for the teaching of the **sentence completions that include text located within identified sentences between at least a portion of a fragment of text and an end of the identified sentences** (C.60 lines 36-44-his sentence completions, determining up to the end of the sentence). Thus, the Examiner only relies on Veale for the composite,

or merging of answers, wherein the answers, are interpreted as the sentence completions as taught by Shanahan. Therefore, it is the combination of elements, wherein Shanahan teaches multiple auto-completion entities. Veale teaches answers, and merging separate answers to form a composite answer. Thus, the combination would produce merged auto-completion entities, as a composite answer to the user input. Claim 32 arguments are unpersuasive as they are based on the parent claim 31, which have been deemed unpersuasive.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-7, 9-19, 21, 22, 24-27, and 29 are rejected under 35 USC 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 USC 101 must (1) be tied to another statutory category (such as a manufacture or a machine), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claim(s) neither transform underlying subject matter nor positively

recite structure associated with another statutory category, and therefore do not define a statutory process (i.e. outputting and displaying to a user would tie such a claim to another statutory category).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-7, 12, 17-19, and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan et al. (US 6,820,075) in view of Goodwin et al. (Goodwin, 7,200,592).

As per **claim 1**, Shanahan teaches a method comprising:

obtaining a text fragment (C.54 lines 42-51);

performing a search, based, at least in part, on the text fragment, to identify one or more documents (ibid, C.54 lines 38-41-his meta-document(s), C.55 lines 15-22-his database search);

identifying sentences within the one or more documents that include the text fragment (ibid, C.54 lines 64-67-his collection of words, C.60-lines

9-57-his first word/match phrase and further completion of the fragment to the end of his sentence, wherein the sentence is identified for presentation, C.55 lines 61-65-his entities fragments);

determining sentence endings as text that is located within the identified sentences between the text fragment and an end of the identified sentences (ibid, inherent to the identified ending of the first/match phrase and the rest of the text up to the end of the sentence, C.60 lines 36-44-his sentence completions, determining up to the end of the sentence); and

assigning scores to the sentence endings (C.55 lines 23-32-his highest confidence completions, and ranked/ordered, appropriate completions);

presenting the sentence endings as potential completions for the text fragment (ibid, C.54 lines 42-51, C.60 lines 36-44-his sentence completions, all the way up to the end of the sentence).

Shanahan lacks explicitly teaching assigning scores to the sentences endings based, at least in part, on a location within the identified sentences at which the text fragment occurs; and presenting the sentence endings as potential completions for the text fragment based, at least in part, on the scores.

However, Goodwin teaches assigning scores based, at least in part, on a location within the identified sentences at which the text fragment occurs (C.20 lines 16-39-his score of the document, the document including sentences, based on the location of the matches-his beginning and middle of document); and presenting the documents as potential completions for the text fragment based, at least in part, on the scores (C.20 lines 16-39-his search score and ordered documents). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Shanahan's sentence endings with Goodwin's scores, providing the benefit of positional analysis for information retrieval (Goodwin, C.20 lines 16-21).

As per **claim 2**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the text fragment includes a phrase (Fig. 47 item 4704 item 4704, his "Dig").

As per **claim 3**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the obtaining of a text fragment includes receiving the text fragment from a user (C.54 lines 42-51-his "user types").

As per **claim 4**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the obtaining a text fragment includes automatically detecting the text fragment (C.54 lines 42-51-his auto-completion from partial word entry).

As per **claim 5**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the performing a search includes searching for documents that include the text fragment as a phrase (see claim 1, also C.54 lines 52-63, C.55 lines 61-65-his entity and document search).

As per **claim 6**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches wherein the performing a search includes searching for documents that include the text fragment and synonyms of one or more words within the text fragment (C.33 lines 42-47, Fig. 45 items 4508, 4510-his "enriched updated document content" includes annotated synonyms, and his auto-completion a based on his enriched information space/document).

As per **claim 7**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan lacks explicitly teaching:

determining whether a number of the one or more documents is less than a threshold;

shortening the text fragment when the number of the one or more documents is less than the threshold; and

performing a search, based, at least in part, on the shortened text fragment, to identify a set of documents.

However, the Examiner takes Official Notice that during an auto-completion mode, if there were less than a threshold of document results, shortening the text fragment would increase the search results (for example ...the search string "therapeutically" would return less documents than "ther" wherein the additional characters of the former limit the search. Therefore it would have been obvious to one ordinarily skilled in the art, at the time of the invention to modify Shanahan with shortening the search text fragment, thus providing the inherent and natural benefit of increasing results as applied to search strings, as understood in the art.

As per **claim 12**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the identifying sentences within the one or more documents includes determining boundaries of the identified sentences based, at least in part, on punctuation near the

identified sentences in the one or more documents (C.60 lines 41-44-inherent to sentence endings/paragraph endings in document).

As per **claim 17**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches claim 1 further comprising:

merging two or more of the sentence endings into a merged sentence ending (C.56 lines 50-52-his indexing of document sentence endings).

As per **claim 18**, Shanahan and Goodwin make obvious the method of claim 17. Shanahan further teaches where the merging two or more of the sentence endings includes:

identifying two or more of the sentence endings that have text in common, and merging the identified sentence endings (C.56 lines 50-52-his indexing of document sentence endings, common text are not duplicated, they are merged and indexed).

As per **claim 19** Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches claim 1 further comprising:

determining quality ones of the sentence endings based, at least in part, on at least one of a table of common beginnings of sentences and a table of common endings of sentences (C.55 lines 23-33-his high

confidence completion, as a table of quality of endings based on the beginnings).

As per **claim 24**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan's teaching further comprising: adjusting the scores of the sentence endings based, at least in part, on lengths of the sentence endings (C.57 line 54-66-his length of entities for calculating score, including features).

As per **claim 25**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan's teaching further comprising:

adjusting the scores of the sentence endings based, at least in part, on whether at least a portion of the sentence endings are included in a list of bad endings (C.59 lines 25-35, C.55 lines 23-25-database sentence endings scores adjusted based on rank, the lower the rank, interpreted as the list of bad endings, i.e. his "most appropriate endings").

As per **claim 26**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan teaching further comprising: discarding one or more of the sentence endings when at least a portion of the one or more endings in included in a list of bad endings (ibid, C.55 lines 23-25, C.59 lines 25-35,

wherein the endings not included in the “most appropriate endings” are discarded, and not presented to the user).

As per **claim 27**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the presenting the sentence endings includes:

ordering the sentence endings based, at least in part, on the scores (C.55 lines 23-30); and

presenting the ordered sentence endings as potential completions for the text fragment (ibid, his ranked list).

However, Goodwin teaches “the scores” (see claim 1). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Shanahan's sentence endings with Goodwin's scored sentences, providing the benefit ranking for information retrieval (Goodwin, [0068]).

As per **claim 28**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the presenting the sentence endings includes:

providing the sentence endings via a pop-up window (C.55 lines 24-25-his presented list, Fig. 47).

As per **claim 29**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan further teaches where the presenting the sentence endings includes:

inserting on one of the sentence endings near a location of the text fragment (C.59 lines 35-43, and replacing the one of the sentence endings with a subsequent one or more of the sentence endings (C.59 lines 44, 45-his repeated auto-completion process).

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan et al. (US 6,820,075) in view of Goodwin, as applied to claim 1 above, and further in view of Ortega et al. (Ortega, US 6,564,213).

As per **claim 21**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan with Goodwin lack where assigning the scores to the sentences endings is further based, at least in part on a measure of popularity associated with each of the sentence endings.

However, Ortega teaches the above "popularity", (C.4 lines 15-28-his search query for auto-completion for "popular" items with frequency calculation for popularity determination, and presentation to user). Therefore, at the time of the invention, it would have been obvious to one

ordinarily skilled in the art to modify the combination of Goodwin with Shanahan's sentence endings with Ortega's popularity, providing the benefit of frequency analysis for information retrieval (Ortega, *ibid*).

As per **claim 22**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan lacks explicitly teaching where the measure of popularity associated with the sentence endings is based, at least in part, on a number of times that the sentence endings occur within the one or more documents.

However, Ortega teaches the above underlined “popularity...” (C.4 lines 15-28-his search query for auto-completion for “popular” items with frequency calculation for popularity determination, and presentation to user). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Shanahan's sentence endings with Ortega's popularity, providing the benefit of frequency analysis for information retrieval (Ortega, *ibid*).

9. Claims 30 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan et al. (US 6,820,075) in view of Ortega et al. (Ortega, US 6,564,213)

As per **claim 30**, Shanahan teaches a system comprising:

means for receiving a text fragment (see claim 1);

means for identifying documents that include the text fragment (see claim 1 ;

means for locating sentences within the documents that include at least some of the text fragment (see claim 1, C.55 lines 60-65, C.60 lines 45-55);

means for identifying sentence endings associated with the located sentences (ibid, see claim 1);

means for presenting the sentence endings as potential completions for the text fragment (see claim 1).

Shanahan lacks explicitly teaching means for assigning scores to the sentence endings based, at least in part, on a measure of popularity associated with the sentence endings; and presenting the sentence endings as potential completions for the text fragment based, at least in part, on the scores.

However, Ortega teaches the above underlined, popularity..., based, at least in part on the scores (C.4 lines 15-28-his search query for auto-completion for “popular” items with frequency calculation for popularity determination, and presentation to user). Therefore, at the time of the

invention, it would have been obvious to one ordinarily skilled in the art to modify Shanahan's sentence endings with Ortega's popularity, providing the benefit of frequency analysis for information retrieval (Ortega, *ibid*).

As per **claim 43**, Shanahan makes obvious the system of claim 31. Shanahan lacks teaching where the one or more servers are further configured to assign scores to the plurality of the sentence completions based, at least in part, on a measure of popularity associated with the plurality of the sentence completions or a location within the located sentences at which the text fragment occurs.

However, Ortega teaches the above "popularity", based, at least in part on the scores (C.4 lines 15-28-his search query for auto-completion for "popular" items with frequency calculation for popularity determination, and presentation to user). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Veale with Shanahan's sentence endings with Ortega's popularity, providing the benefit of frequency analysis for information retrieval (Ortega, *ibid*).

10. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan et al. (US 6,820,075) in view of Goodwin, as applied to claim 1 above.

As per **claim 13**, Shanahan and Goodwin make obvious the method of claim 1. Shanahan lacks explicitly teaching:

trimming at least one of the sentence **endings** by dropping one or more words from the at least one sentence ending.

However, Shanahan teaches trimming (C.35 lines 56-C.36 line 2-his trimming by Zipf's law, Shanahan explicitly drops words from the document, furthermore, C.36 lines 24, 25- his trimming by adjusting the context of the results to a specific number of words). Thus, the Examiner takes Official Notice that the **words in a document may comprise sentence endings**. Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Goodwin with Shanahan's display of completions with Shanahan's trimmings as pertaining to sentence endings with regard to Shanahan's sentence endings auto-completion, providing the benefit of efficient space utilization, wherein if the user has space display restrictions, an efficient method of designating the sentence endings and then truncating based on maximum

number of words in context to display allows for efficient space preservation, and providing for only developing an entity database that includes words having a frequency that would be interesting to a reader (Shanahan, *ibid*-his context display restrictions as applied to his sentence display).

As per **claims 14 and 16**, Shanahan and Goodwin make obvious the method of claim 13. Shanahan further teaches where the one or more words are dropped from the at least one sentence ending based, at least in part, on at least one of text or one or more symbols included in the at least one sentence ending (C.60 lines 25-35-his auto-completion results based on context of sentence, out of context ending deleted, Fig. 47 item 4722 and Fig. 48 his context, C.57 lines 60-62-his symbols comprising the ignored word).

As per **claim 15**, Shanahan and Goodwin make obvious the method of claim 14. Shanahan further teaches:

generating an inverse document frequency table that includes words common to sentence endings (C.57 lines 54-64-his word frequency, and C.58 lines 1-28-his inverse document frequency weighting); and

where the trimming at least one of the sentence endings includes:

comparing the text of the at least one sentence ending to words in the inverse document frequency table (ibid-his auto-completion words ignored based on frequency), and

dropping one or more words from the at least one sentence based, at least in part, on a result of the comparison (ibid-his "ignored" auto-completion word/phrase based on Zipf's law, Shanahan explicitly drops words from the document, furthermore, C.36 lines 24, 25- his trimming by adjusting the context of the results to a specific number of words).

Thus, the Examiner takes Official Notice that the **words in a document may comprise sentence endings**. Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Goodwin with Shanahan's display of completions with Shanahan's trimmings (as he ignores words within the entity for auto-completion items) as pertaining to sentence endings with regard to Shanahan's sentence endings auto-completion, providing the benefit of efficient space utilization, wherein if the user has space display restrictions, an efficient method of designating the sentence endings and then truncating based on maximum number of words in context to display allows for efficient space preservation, and providing for only developing an entity

database that includes words having a frequency that would be interesting to a reader (Shanahan, *ibid*-his context display restrictions as applied to his sentence display).

11. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan et al. (US 6,820,075).

As per **claim 31**, Shanahan teaches comprising:
one or more servers configured to (fig. 2 his “network file server/network):
receive a text fragment (see claim 30),
identify documents that include at least a portion of the text fragment (see claim 30),
located sentences within the document that are associated with the text fragment (see claim 30), and
determine sentence completions associated with the located sentences (see claim 30).
provide a plurality of sentence completions including the trimmed sentence completion as potential completions for the text fragment (*ibid*, Fig. 46 item 4612).

Shanahan does not explicitly teach trim one of the sentence completions by dropping one or more words from one of the sentence completions.

However, Shanahan teaches trimming (C.35 lines 56-C.36 line 2-his trimming by Zipf's law, Shanahan explicitly drops words from the document, furthermore, C.36 lines 24, 25- his trimming by adjusting the context of the results to a specific number of words). Thus, the Examiner takes Official Notice that the **words in a document may comprise sentence endings**. Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Goodwin with Shanahan's display of completions with Shanahan's trimmings as pertaining to sentence endings with regard to Shanahan's sentence endings auto-completion, providing the benefit of efficient space utilization, wherein if the user has space display restrictions, an efficient method of designating the sentence endings and then truncating based on maximum number of words in context to display allows for efficient space preservation, and providing for only developing an entity database that includes words having a frequency that would be interesting to a reader

(Shanahan, *ibid*-his context display restrictions as applied to his sentence display).

As per **claim 32**, Shanahan makes obvious the system of claim 31, and further teaches wherein the one or more servers include a plurality of servers (Fig. 2 items 200, 221, his multiple servers, Fig. 5).

12. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan in view of Veale (US 6,584,470).

As per **claim 41**, Shanahan teaches a computer device, comprising:
a memory configured to store instructions (see claim 34); and
a processor configured to execute the instructions in the memory to:
obtain a fragment of text (see claim 34),
search for documents that include at least a portion of the fragment of text (see claim 34, C.56 lines 55-63),
identify sentences within the documents that include the at least the portion of the fragment of text (*ibid*),
determine sentence completions as text located within with the identified sentences between the at least the portion of the text fragment of text and an end of the identified sentences (*ibid*, inherent to the identified ending of the first/match phrase and the rest of the text up to the end of the

sentence, C.60 lines 36-44-his sentence completions, determining up to the end of the sentence), and

provide a plurality of the sentence completions (ibid, Fig. 46 item 4612) as potential completions for the fragment of text (ibid-his auto-completion suggestions, see claim 34).

Shanahan lacks teaching to, merge at least two of the sentence completions to form a single merged sentence completion, provide a plurality of the sentence completions, including the merged sentence completion as potential completions for the fragment of text.

However, Veale teaches merging at least two of the sentence completions to form a single merged sentence completion, provide a plurality of the sentence completions, including the merged sentence completion as potential completions for the fragment of text (C.21 line 35-C.22 line 7-his merging two sentence completions to form one complete sentence ending). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify Shanahan's completion suggestions with Veale's merged completion suggestions, providing the benefit of providing a composite answer if required (Veale, ibid).

13. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan in view of Veale (US 6,584,470), as applied to claim 41 above, and further in view of Ortega.

As per **claim 44**, Shanahan and Veale make obvious the system of claim 41, but the combination lacks teaching where the one or more servers are further configured to assign scores to the plurality of the sentence completions based, at least in part, on a measure of popularity associated with the plurality of the completions or a location within the located sentences at which the text fragment occurs.

However, Ortega teaches the above “popularity”, based, at least in part on the scores (C.4 lines 15-28-his search query for auto-completion for “popular” items with frequency calculation for popularity determination, and presentation to user). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Veale with Shanahan's sentence endings with Ortega's popularity, providing the benefit of frequency analysis for information retrieval (Ortega, *ibid*).

14. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shanahan in view of Goodwin, as applied to claim 7 above, and further in view of Risvik et al. (Risvik, US 6,377,945).

As per **claim 9**, Shanahan and Goodwin make obvious the method of claim 7, but the combination lacks explicitly teaching where the shortening the text fragment includes dropping one or more words from a beginning or end of the text fragment.

However, Risvik teaches wherein the shortening the text fragment includes dropping one or more words from a beginning or end of the text fragment (C.10 lines 32-41-his deleting start word). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Goodwin and Shanahan with Risvik's possible word start sequence search providing the benefit of limiting search to only possible matches.

As per **claim 10**, Shanahan and Goodwin make obvious the method of claim 7, but the combination lacks explicitly teaching where shortening the text fragment includes:

identifying one or more symbols within the text fragment; and

dropping one or more words from the text fragment based, at least in part, on the one or more identified symbols.

However Risvik teaches identifying one or more symbols within the text fragment; and dropping one or more words from the text fragment based, at least in part, on the one or more identified symbols (C.10 lines 32-41-his deleted word). Therefore, at the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Fernley and Shanahan with Risvik's word deletion providing the benefit of limiting search to only possible matches.

As per **claim 11**, Shanahan and Goodwin make obvious the method of claim 7, but the combination lacks explicitly teaching where the shortening the text fragment includes:

analyzing a structure of the text fragment; and

dropping one or more words from the text fragment based, at least in part, on the analysis.

However Risvik teaches analyzing a structure..., dropping one ...based, at least in part, on the analysis (C.8 lines 53-67-his edit operations as applied to his sequence, C.10 lines 32-41-his deleted words based on the analysis, abstract-his data structure analysis). Therefore, at

the time of the invention, it would have been obvious to one ordinarily skilled in the art to modify the combination of Fernley and Shanahan with Risvik's word deletion providing the benefit of limiting search to only possible matches.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gunn et al. (US 2005/00223308) teaches auto-completion and scoring completion candidates.
- Yuret (US 6,957,213) teaches sentence completion based on answer extraction.
- Schabes et al. (US 2004/0117352) teaches sentence completion based on answer extraction.
- Chang et al. (US 7,376,641) teaches summarization of answers, wherein items are removed from the answer list.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAMONT M. SPOONER whose telephone number is (571)272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571/272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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